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AUTHOR Rodriguez, Jesus J.
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ABSTRACT

A study was conducted to determine if differences existed between and among the perceptions of commercial printers, printer educators, and printing trade services suppliers in Texas regarding current and future employment trends for skilled workers in commercial printing. A random sample of commercial printers, high school printing educators, and printing trade services suppliers completed a three-part survey instrument. Data for the 260 responses (57% return) revealed that significant differences in the perceptions of the groups existed in the following twelve production areas: design and layout, hot metal composition, phototypesetting keyboard operations, paste-up, combination of paste-up and any one or more of the above, proofreading, black-and-white camera operations, process color operations, combination of process color operations and stripping, small offset operations, and web press operations. Survey respondents indicated that the current demand for skilled workers was in small offset operations, hand and small machine operations, cutter and folder operations, black-and-white camera operations, and black-and-white stripping. (LRA)

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A Summary Report of Research

DEMAND FOR SKILLED WORKERS IN COMMERCIAL PRINTING AS PERCEIVED BY COMMERCIAL PRINTERS, PRINTING EDUCATORS, AND PRINTING TRADE SERVICES SUPPLIERS

by

Jesús J. Rodriguez
Department of Printing
Pittsburg State University
Pittsburg, Kansas 66762

formerly

EPDA Fellow, Vocational Education
College of Education
Texas A&M University
College Station, Texas 77843

May 1979

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FOREWORD

Too often people in a profession, and teachers developing curricula and preparing trained people for that profession, forget that the number of people needed in different areas of that profession varies over a period of time. Also, curriculum developers and program planners sometimes fail to consider the fact that the number of people needed in a particular profession in a particular geographic area may also change over time. Because of the apparently changing picture in the commercial printing industry, Jesús J. Rodriguez undertook the timely research study summarized herein.

The findings, conclusions, implications, and recommendations reported by Dr. Rodriguez will be of interest to both commercial printers and printing educators preparing people for different production areas of the commercial printing industry.

For additional information on the study, the reader may wish to contact the author, Dr. Jesús J. Rodriguez, Assistant Professor, Department of Printing, Pittsburg State University, Pittsburg, Kansas 66762. His telephone number is (316) 231-7000, Extension 392.

James E. Christiansen, Professor
Department of Agricultural Education
Texas A&M University
College Station, Texas 77843
May, 1979

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DEMAND FOR SKILLED WORKERS IN COMMERCIAL PRINTING AS PERCEIVED BY COMMERCIAL PRINTERS, PRINTING EDUCATORS, AND PRINTING TRADE SERVICES SUPPLIERS

Introduction

Printing and publishing is a major industry in the United States employing over one million workers. It is characterized by the predominance of small plants. Trends within the industry are toward increased employment, rising productivity, growing capital, and intensified research and development.

The increased employment and rising productivity projected for the printing and publishing industry will result in increased demand for skilled workers in commercial printing. Commercial printing, a subgroup within the printing and publishing industry, is the most widely diversified and dispersed of all manufacturing businesses and accounts for about one third of the total printing and publishing workforce.

Purpose and Objectives

The purpose of the study was to determine if differences existed between and among the perceptions of commercial printers, printing educators, and printing trade services suppliers in Texas regarding current and future employment trends for skilled workers in commercial printing.

To achieve the purpose the following supporting objectives were established:

1. Determine areas of agreement and disagreement concerning the current demand for skilled workers in different production areas of the commercial printing industry as perceived by
   a. commercial printers, printing educators, and printing trade services suppliers,
   b. commercial printers in each of the six Standard Metropolitan Statistical Areas, and
   c. high school printing educators and post high school printing educators.
2. Determine areas of agreement and disagreement concerning the demand in

five years for skilled workers in different production areas of the commercial printing industry as perceived by

   a. commercial printers, printing educators, and printing trade services suppliers,
   b. commercial printers in each of the six Standard Metropolitan Statistical Areas, and
   c. high school printing educators and post high school printing educators.

3. Compare current demand and demand in five years for skilled workers in commercial printing as perceived by
   a. commercial printers, printing educators, and printing trade services suppliers,
   b. commercial printers in each of the six Standard Metropolitan Statistical Areas, and
   c. high school printing educators and post high school printing educators.
4. Determine areas of agreement and disagreement concerning selected issues pertaining to demand for skilled workers in commercial printing as perceived by commercial printers, printing educators, and printing trade services suppliers.
5. Determine the anticipated number of skilled workers needed in commercial printing as perceived by commercial printers considering both the current demand and the probable demand in five years.

A review of the literature resulted in the development of a theoretical base which led to the formulation of ten null hypotheses which were tested statistically in order to achieve the first four objectives of the study.

Need for the Study

The well-being of commercial printing is often a reflection of economic trends at any given time. As the nation's economy has its "ups-and-downs", so has the commercial printing industry as reflected by increased or decreased activities related to the manufacturing of the printed product.

All metropolitan areas in Texas have experienced increases in population, business, and manufacturing activity. The increased activity constitutes an augmented demand for printed related services.

Determining perceptions held as to the demand for skilled workers in selected production areas associated with commercial printed can be useful in determining curriculum content, identifying areas of concentration needed in existing printing programs, and redirecting, if necessary, the emphasis of existing programs of instruction, whether in the public school system, apprenticeship training programs, trade association courses, or inplant training programs.

Associated with the need for the study is the continuing growth of the printing and publishing industry, the lack of manpower demand assessments reflecting the needs in specific areas of commercial printing, and the availability of a vast resource of knowledgeable people with opinions and attitudes related to the constant change in demand for skilled workers in commercial printing.

Research Procedure

The random sample of commercial printers for this study were identified and randomly selected from the membership lists of the two printing trade associations in Texas and the 1977-78 Directory of Texas Manufacturers (Bureau of Business Research, 1977). The listing under the six largest Standard Metropolitan Statistical Areas in the state were used. These SMSAs were Austin, Beaumont-Port Arthur-Orange, Dallas-Fort Worth, El Paso, Houston, and San Antonio.

The high school printing educators listing came from the 1977-78 Directory, Schools, Programs, Teachers, Vocational Industrial Education, Texas Secondary Public Schools (Vocational Instructional Services, 1978). The Information Guide and Directory of Occupational-Technical Programs in Post Secondary Institutions in Texas (Texas Education Agency, 1975) was used to identify post high school printing educators.

The printing trade services suppliers were identified and drawn randomly from the membership lists of the two printing trade associations in Texas and the 1977-78 Directory of Texas Manufacturers (Bureau of Business Research, 1977).

In order to secure the necessary information for the study, a three part survey instrument was developed to secure data from commercial printers. A two part survey instument was developed to secure data from printing educators, and printing trade services suppliers.

Part I of the survey instrument consisted of a listing of production areas usually found in a commercial printing plant. Part II of the survey instrument consisted of 16 issue statements related to the demand for skilled workers in commercial printing to which participants reacted by expressing their agreement or disagreement on a five-point Likert-type scale.

Part III of the survey instrument consisted of the same listing of production areas found in part I and was intended only for the commercial printers. They were asked to indicate the change in actual number of skilled workers currently needed and the probable demand in five years in their own particular operation.

After mailing 519 preliminary letters alerting respondents to the purpose of the forthcoming survey, mailing the instrument, follow-up letters, and phone calls, 260 responses, or 57 percent, were received.

Each item response was transferred to data processing tabulation sheets and key punched on IBM cards at the Texas A&M University Data Processing Center. Each card was checked for accuracy.

Analysis of variance was used to test hypotheses one through six and ten, the hypotheses which corresponded with objectives one, two, and four of the study. Analysis of variance with repeated measures was used to test hypotheses seven through nine which pertained to objective three of the study.

Where the F-values derived showed no statistically significant differences among the means at the .05 level of significance, no other test was made. Where the values calculated indicated significance, the Scheffé test was performed in order to determine where the differences lay.

All statistical analyses were accomplished by an Amdahl 470 V/6 computer installation at Texas A&M University. The method of analysis involved computation of analysis of variance using the ANOVAR routine. The ANSCHEFF routine developed by Barker (1973) was used to apply the Scheffé test to those analyses found significantly different.

Findings and Conclusions

The following findings and conlusions were formulated from the analyses of this study arising from the hypotheses tested.

Findings and Conclusions, Objective One, Hypothesis One

This objective sought to determine areas of agreement and disagreement concerning the current demand for skilled workers in the commercial printing industry as perceived by commercial printers, printing educators, and printing trade services suppliers. The null hypothesis tested for each of the 24 production areas was that there were no differences among perceptions of commercial printers, printing educators, and printing trade services suppliers regarding the current demand for skilled workers in commercial printing.

Significant differences were evident in 12 of the 24 production areas. These 12 production areas included design and layout, hot metal composition, phototypesetting keyboard operations, paste-up, combination of paste-up and any one or more of the above, proofreading, black and white camera operations, process color operations, combination of process color operations and stripping, small offset operations (ABDick, Multi, etc.), and web press operations (circulars).

The Scheffé test revealed significant differences among respondents in six of the 24 production areas. Based on the results of the Scheffé test it was concluded that the hypothesis of no difference could not be rejected for 18 of the 24 production areas but was rejected on six production areas.

Findings and Conclusions, Objective One, Hypothesis Two

This objective sought to determine areas of agreement and disagreement concerning the current demand for skilled workers in different production areas of the commercial printing industry as perceived by commercial printers in each of the six Standard Metropolitan Statistical Areas selected. The null hypothesis that was statistically tested for each of the 24 production areas was that there are no differences among perceptions of commercial printers in each of the six SMSAs selected concerning the current demand for skilled workers in commercial printing.

Since analysis of the data pertaining to this hypothesis revealed that no significant differences existed after the Scheffé test was calculated on the single production area initially found significant, the hypothesis could not be

rejected for the 24 production areas. Therefore, it was concluded that no differences existed among perceptions of commercial printers in each of the SMSAs selected concerning the current demand for skilled workers in commercial printing.

Findings and Conclusions, Objective One, Hypothesis Three

This part of objective one sought to determine areas of agreement and disagreement concerning the current demand for skilled workers in different production areas of the commercial printing industry as perceived by high school printing educators and post high school printing educators. The null hypothesis tested for each of the 24 production areas was that there is no difference between the perceptions of high school printing educators and post high school printing educators concerning the current demand for skilled workers in identified production areas usually found in the commercial printing industry.

A significant difference was found in production area twenty-three, hand and small machine operations. No Scheffé test was calculated since analysis was made between two means. Consequently, it was concluded that the hypothesis of no difference could not be rejected based on the results of this study.

Findings and Conclusions, Objective Two, Hypothesis Four

This objective sought to determine areas of agreement and disagreement concerning the demand in five years for skilled workers in identified production areas in the commercial printing industry as perceived by commercial printers, printing educators, and printing trade services suppliers. The null hypothesis tested for each of the 24 production areas was that there are no differences among perceptions of commercial printers, printing educators, and printing trade services suppliers regarding the demand in five years for skilled workers in commercial printing.

Significant differences were evident in eight of the 24 production areas. These included hot metal composition, phototypesetting keyboard operations, paste-up, combination of paste-up and any one or more of the above, proofreading, small offset operations (ABDick, Multi, etc.), web press operations (circulars), and hand and small machine operations.

The Scheffé test revealed significant differences among respondents in seven of the production areas. Consequently, it was concluded that the null hypothesis

of no difference could not be rejected for the remaining 17 production areas.

Findings and Conclusions, Objective Two, Hypothesis Five

This objective sought to determine areas of agreement and disagreement concerning the demand in five years for skilled workers in different production areas of the commercial printing industry as perceived by commercial printers in each of the six SMSAs selected. No significant differences were found in the statistical analysis of data pertaining to the null hypothesis tested for each of the 24 production areas. Consequently, it was concluded that the null hypothesis could not be rejected.

Findings and Conclusions, Objective Two, Hypothesis Six

This part of objective two sought to determine areas of agreement and disagreement concerning the demand in five years for skilled workers in different production areas of the commercial printing industry as perceived by high school printing educators and post high school printing educators. The null hypothesis tested for each of the 24 production areas that there is no difference between the perceptions of high school printing educators and post high school printing educators concerning the demand in five years for skilled workers in commercial printing.

Significant differences were found in responses in relationship to production area nine, proofreading. No Scheffé test was calculated since analysis was made between two means. Consequently, it was concluded that the hypothesis of no difference could not be rejected.

Findings and Conclusions, Objective Three, Hypothesis Seven

This objective sought to compare current demand and demand in five years for skilled workers as perceived by commercial printers, printing educators, and printing trade services suppliers. The null hypothesis tested for each of the 24 production areas was that there is no difference between the current demand and the demand in five years for skilled workers in identified production areas in commercial printing as perceived by commercial printers, printing educators, and printing trade services suppliers.

Sixteen of the 24 production areas were found to be significant when comparisons of current demand and demand in five years were made among each of the three groups. These included design and layout, hot metal composition,

phototypestting keyboard operations, phototypesetting printer operations, combination of paste-up and any one or more of the above, process color operations, small offset operations (ABDick, Multi, etc.), larger offset operations (over 17x22), process color operations (over 17x22), web press operations (commercial color), web press operations (forms), web press operations (circulars), and cutter and folder operations.

In every production area there was at least one comparison for which significant differences existed. In every case, except for hot metal composition and strike-on composition, the perceived demand in five years was higher than was the current demand. Consequently, it was concluded that the null hypothesis could be rejected.

Findings and Conclusions, Objective Three, Hypothesis Eight

This part of objective three sought to compare current demand and demand in five years for skilled workers in commercial printing as perceived by commercial printers in each of the six SMSAs selected. The null hypothesis tested for each of the 24 production areas was that there is no difference between the current demand and the demand in five years for skilled workers in identified production areas in commercial printing as perceived by commercial printers in the six SMSAs selected.

Comparison of current demand and demand in five years indicated significant differences in perception by printers in Austin in two production areas, hot metal composition and phototypesetting printer operations. Beaumont printers' perceptions did not reveal significance. Dallas printers' perceptions were significant in 18 of the 24 production areas. El Paso printers' perceptions were significant in two production areas, hot metal composition and process color operations (over 17x22). Houston printers' perceptions were significant in 19 of the 24 production areas while San Antonio printer's perceptions were were significant in 10 of the 24 production areas.

Since 22 of 24 production areas were found to be significant by at least one of the comparisons between current demand and demand in five years in the six SMSAs selected, it was concluded that the hypothesis of no difference could be rejected in 22 of the 24 production areas and could not be rejected for the two production areas, strike-on composition and hand and small machine operations.

Findings and Conclusions, Objective Three, Hypothesis Nine

This part of objective three sought to compare current demand and demand in five years for skilled workers in identified production areas in commercial printing as perceived by high school printing educators and post high school printing educators. The null hypothesis tested for each of the 24 production areas was that there is no difference between current demand and demand in five years for skilled workers in commercial printing as perceived by high school printing educators and post high school printing educators.

Comparison of current demand and demand in five years indicated significant differences in 20 of the 24 production areas by the high school printing educators and 18 of the 24 production areas by the post high school printing educators. Of the 24 production areas, two were perceived to have a decrease in demand between current demand and demand in five years by both the high school printing educators and the post high school printing educators. The two production areas were hot metal composition and strike-on composition.

In all except one production area, black and white stripping, there were significant differences when comparing the perception of current demand and the projected demand in five years. It was concluded that the null hypothesis could be rejected for 23 of the 24 production areas.

Findings and Conclusions, Objective Four, Hypothesis Ten

This objective sought to determine areas of agreement and disagreement concerning selected issues pertaining to demand for skilled workers in commercial printing as perceived by commercial printers, printing educators, and printing trade services suppliers. The null hypothesis tested for each of the 16 issues was that there are no differences among the perceptions of commercial printers, printing educators, and printing trade services suppliers concerning selected issues regarding the demand for skilled workers in commercial printing.

Significant differences were found in nine of the 16 issues. The Scheffé test revealed significant differences were found to exist between the commercial printer and the printing educator, and between the printing educator and the printing trade services supplier.

In almost every case where comparisons of means were made which resulted in significance, the printing educator's mean was the highest indicating a higher

degree of agreement. In most cases the higher mean resulted in the significant difference occurring between the commercial printer and the printing educator, and between the printing educator and the printing trade services supplier.

Findings and Conclusions, Objective Five

This objective sought to determine the anticipated number of skilled workers needed in commercial printing as perceived by commercial printers considering both the current demand and the demand in five years. One hundred and twenty-one of the 133 commercial printers who responded included data that were useful in compiling the results. The commercial printers in the study were asked to give the actual number of people they perceived currently needed and the demand in five years in their own particular operation.

The highest current demand was found in small offset operations (234), followed by hand and small machine operations (159), cutter and folder operations (125), black and white camera operations (117), and black and white stripping (115). The remaining production areas indicated current demand ranging from a high of 103 (paste-up) to a low of 14 for web press operations (forms).

The highest projected demands in five years were found in small offset operations (335), hand and small machine operations (273), cutter and folder operations (227), larger offset operations (197), and paste-up (196). The remaining production areas ranged from 192 (black and white camera operations) to a low of 32 (hot metal composition and web press operations, circulars).

The largest gross increases in demand were in hand and small machine operations (144), cutter and folder operations (102), small offset operations (101), larger offset operations (97), and paste-up (93). One production area, hot metal composition, was perceived to have a minus seven total in demand in five years.

It was concluded that the actual number of workers needed in the commercial printing establishments in Texas represented by those responding in this study ranged widely. Nevertheless, it was concluded that a definite demand for additional workers did exist now and for the next five years even when considering only those persons participating in this study. It was further concluded that the greatest demand existed for skilled workers in hand and small machine operations, cutter and folder operations, small and larger offset operations, and paste-up.

Implications

The perceptions on current demand and demand in five years for skilled workers indicate that all but two of the production areas should experience increased demand. The added number of skilled workers needed will require that existing printing programs cater to those needs by curricular adjustments and/or more flexible programs.

The level of responses to particular issues imply that there is a need for regularly conducted surveys to determine manpower needs in the printing industry, that a combined or united effort needs to be established to have the skilled workers needed by the printing industry available, and to have training sessions for printing educators to help upgrade their technical "trade" skills.

Implications also exist that a statewide advisory council should be established to promote communication, cooperation, and understanding between the printing industry and state education agencies, that financial aid should be made available to individuals interested in pursuing their education in printing at the technical institute and community junior college level, that more formal courses be made available to keep workers in commercial printing current in new techniques in technical skill areas, and that the printing industry is a good source of employment for disadvantaged, handicapped, minorities, and veterans.

The figures associated with the actual current demand and demand in five years are based on the data supplied by 121 commercial printers in the six SMSAs surveyed and do not constitute the total demand in the state of Texas. These figures, if extrapolated to the total population, would imply that a heavy burden will be placed on the existing printing programs at all levels; consequently, an active involvement of other sources of skilled workers is inevitable.

An additional implication exists that the printing trade associations can assume the leadership role necessary to complement the projected economic growth in the state of Texas with the growth of the printing and publishing industry if they would take on an active interest in promoting the resolutions of those issues perceived to be agreed upon by the three groups surveyed in this study.

Recommendations

Based on the analysis of the data, the conclusions, and the implications, the following recommendations are made.

Recommendations Arising from the Study

Since, generally, differences existed between the current demand and the demand in five years, it is recommended that personnel responsible for printing programs at all educational levels review and revise their curriculum to reflect the perceived demand and to plan in anticipation of the demands to implement flexible plans of study.

Implementation and success of any of the recommendations depends on the active participation and involvement of Printing Industries of the Gulf Coast in Houston and Printing Industries Association of Texas in Dallas. Therefore, it is recommended that a graphic communications center be established in either Houston or Dallas to serve as the catalyst for any movement or push favorable to the printing industry in Texas. Such a center could coordinate activities essential to a strong printing industry. Those activities can include conducting periodic surveys to determine manpower needs, working with the state education agencies in developing courses for upgrading the competence of printing edcuators, compiling data identifying existing financial aid and encourage the increasing of financial aid for individuals interested in pursuing their education in printing, and serving as a dissemination center for the recruitment for, and the promotion of, the printing industry in Texas.

It is further recommended that a statewide advisory council be created, to be made of a cross section of the printing industry in the state, to serve as a guide and advisor to state education agencies and to promote quality printing education.

Recommendations for Future Research

The information compiled in the study is about one segment of the printing and publishing industry. Future studies can result in the gathering of information to define further the printing industry and its needs. Therefore, the following recommendations for future research are made.

A similar study of other segments of the industry should be conducted. In the breakdown of production areas consideration should be given to the specific segment of the industry and to the kind of work performed.

A study should be undertaken to identify competencies needed by skilled workers in the production areas associated with commercal printing.

A supply/demand study of managerial positions in the printing and publishing industry in Texas should be conducted. This study can indicate to what extent the existing college-level printing programs may or may not be serving the managerial needs of the industry.

A study should be conducted to identidy competencies needed by college-level printing students for placement in supervisory and managerial positions in the printing industry in Texas.

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CONFIDENTIAL

SKILLED WORKERS IN COMMERCIAL PRINTING A DEMAND STUDY

Commercial Printers' Opinionnaire

We need your opinion regarding current and future employment trends for skilled workers in commercial printing. Your answers will be useful to the printing and publishing industry, commercial printing industry, printing educators, printing trade services suppliers, printing trade associations, and others interested in meeting the demand for skilled workers in the printing industry.

The opinionnaire should take approximately 20-25 minutes to complete.

In Part I we want YOUR opinion about the demand for skilled workers in the commercial printing industry. Your responses should reflect what you think the demands are in the production areas listed and should not be limited to a particular commercial printing operation.

GENERAL INFORMATION

For the purpose of this study, "demand" and "skilled worker" mean:

Demand—the need of industry for skilled workers through expansion or replacement.

Skilled worker—nonmanagement personnel from trainees through experienced craftsmen.

Please return this questionnaire in the enclosed self-addressed, stamped envelope to:

Jesus J. Rodriguez
Vocational, Adult and Extension Education
College of Education
Texas A&M University
College Station, Texas 77843

THANK YOU!!!

Code No. _____
(This code No. is only for follow-up purposes)

Part I. Perceived Demand for Skilled Workers, Industry Wide

In Column II below, you will find a listing of production areas usually found in a commercial printing plant.

Directions:

1. Read each production area before completing the following.
2. Circle the number in Column I that expresses YOUR opinion as to the current demand for skilled workers in commercial printing. Please do not limit your responses to your operation, but consider the industry as a whole. Use the following codes in responding:

   1. no demand
   2. very low demand
   3. low demand
   4. moderate demand
   5. high demand
   6. very high demand

3. Circle the number in Column III that expresses YOUR opinion as to the demand for skilled workers in commercial printing in five years. Use the same codes as above.

PLEASE RESPOND TO EACH ITEM! Thank You!

Example:

(Col. I) Current Demand	(Col. II) PRODUCTION AREAS Employee Functions	(Col. III) Demand in 5 Years
1 2 3 (4) 5 6	a. Screen printing operations	1 2 3 4 (5) 6

In the example, the person responding believes that there is "moderate demand', or 4, for screen printing operators currently and "high demand", or 5, in five years.

(Col. I) Current Demand	(Col. II) PRODUCTION AREAS Type and Copy Preparation	(Col. III) Demand in 5 Years
1 2 3 4 5 6	a. Design and Layout	1 2 3 4 5 6
1 2 3 4 5 6	b. Hot Metal Composition	1 2 3 4 5 6
1 2 3 4 5 6	c. Strike-on Composition	1 2 3 4 5 6
1 2 3 4 5 6	d. Phototypesetting Keyboard Operations	1 2 3 4 5 6
1 2 3 4 5 6	e. Phototypesetting Printer Operations	1 2 3 4 5 6
1 2 3 4 5 6	f. Combination of Keyboard and Printer Operations	1 2 3 4 5 6
1 2 3 4 5 6	g. Paste-up	1 2 3 4 5 6
1 2 3 4 5 6	h. Combination of Paste-up and any one or more of the above	1 2 3 4 5 6
1 2 3 4 5 6	i. Proofreading	1 2 3 4 5 6

Should any production areas be added to the section above?

1 2 3 4 5 6	j. _____	1 2 3 4 5 6

(Col. I) Current Demand	(Col. II) Pre-Press Section	(Col. III) Demand in 5 Years
1 2 3 4 5 6	k. Black & White Camera Operations	1 2 3 4 5 6
1 2 3 4 5 6	l. Process Color Operations	1 2 3 4 5 6
1 2 3 4 5 6	m. Black & White Stripping	1 2 3 4 5 6
1 2 3 4 5 6	n. Process Color Stripping	1 2 3 4 5 6
1 2 3 4 5 6	o. Combination of Black & White Camera Operations and Stripping	1 2 3 4 5 6
1 2 3 4 5 6	p. Combination of Process Color Operations and Stripping	1 2 3 4 5 6
1 2 3 4 5 6	q. Offset Platemaking	1 2 3 4 5 6

Should any production areas be added to the section above?

1 2 3 4 5 6	r. _____	1 2 3 4 5 6

Press Room

1 2 3 4 5 6	s. Small Offset Operations (ABDick, Multi, etc.)	1 2 3 4 5 6
1 2 3 4 5 6	t. Larger Offset Operations (Over 17x22)	1 2 3 4 5 6
1 2 3 4 5 6	u. Process Color Operations (over 17x22)	1 2 3 4 5 6
1 2 3 4 5 6	v. Web Press Operations (Commercial Color)	1 2 3 4 5 6
1 2 3 4 5 6	w. Web Press Operations (Forms)	1 2 3 4 5 6
1 2 3 4 5 6	x. Web Press Operations (Circulars)	1 2 3 4 5 6

Should any production areas be added to the section above?

1 2 3 4 5 6	y. _____	1 2 3 4 5 6

Bindery and Finishing

1 2 3 4 5 6	z. Hand and small machine operations	1 2 3 4 5 6
1 2 3 4 5 6	aa. Cutter and folder operations	1 2 3 4 5 6

Should any production areas be added to the section above?

1 2 3 4 5 6	bb. _____	1 2 3 4 5 6

Do you have any comments about any of the items in the production areas listed above?

Part II. Selected Issues

The following statements represent opinions. To what extent do you agree or disagree with each statement? We are interested in your ideas and want you to be frank with us.

Directions: Please circle the level of agreement after each statement that most nearly expresses YOUR opinion about that statement. Use the following codes in responding:

1. strongly disagree
2. disagree
3. no opinion
4. agree
5. strongly agree

PLEASE RESPOND TO EACH ITEM! Thank You!

Example:
0. The printing and publishing industry is a dying industry in the United States. 1 (2) 3 4 5

The person responding to the above statement has indicated that he "disagrees" with the statement by circling 2.

1. Regular surveys should be conducted to determine manpower needs in the printing industry.	1	2	3	4	5
2. The educational community and the printing industry should join hands in promoting the availability of skilled workers.	1	2	3	4	5
3. Training sessions should be designed for, and required of, printing educators to help upgrade their technical "trade" skills.	1	2	3	4	5
4. A statewide advisory council should be established to promote communication, cooperation, and understanding between the printing industry and the Texas Education Agency.	1	2	3	4	5
5. There is an adequate supply of trained workers for the commercial printing industry.	1	2	3	4	5
6. Financial aid should be made available to individuals interested in pursuing their education in printing at the college/university level.	1	2	3	4	5
technical institute level.	1	2	3	4	5
community junior college level.	1	2	3	4	5
7. More formal programs/courses should be available to keep workers in commercial printing current in new techniques in technical skill areas.	1	2	3	4	5
8. The printing industry can be a good source of employment for disadvantaged citizens.	1	2	3	4	5
handicapped citizens.	1	2	3	4	5
minority citizens.	1	2	3	4	5
veterans.	1	2	3	4	5
ex-convicts.	1	2	3	4	5

9. The commercial printing industry and not printing education programs should assume the major responsibility for preparing competent workers in commercial printing. 1 2 3 4 5

10. More people should be actively recruited and trained for employment in the commercial printing industry. 1 2 3 4 5

Please list and rate below any additional issues you see confronting the commercial printing industry.

11. _____

_____

_____ 1 2 3 4 5

12. _____

_____

_____ 1 2 3 4 5

Part III. Actual Demand for Skilled Workers, YOUR Operation

Column I below is a listing of production areas usually found in a commercial printing plant.

Directions:
1. Please read the production area in Column I.
2. For each production area in Column I, indicate in Column II the additional number of skilled workers you currently anticipate in **your** particular operation.
3. Indicate in Column III the change in number of skilled workers you anticipate in five years in **your** particular operation. This change may be an increase or a decrease.

Example:

(Col. I) **PRODUCTION AREAS** **Employee functions**	(Col. II) **Current Demand**	(Col. III) **Demand in 5 Years**
a. Screen printing operations	1	3

In the example above, the person responding has indicated that the current demand is for one screen printing operator and that 3 screen printing operators will be needed in five years.

(Col. I.) **PRODUCTION AREAS** **Type and Copy Preparation**	(Col. II) **Current Demand**	(Col. III) **Demand in 5 Years**
a. Design and Layout		
b. Hot Metal Composition		
c. Strike-on Composition		
d. Phototypesetting Keyboard Operations		
e. Phototypesetting Printer Operations		
f. Combination of Keyboard and Printer Operations		
g. Paste-up		
h. Combination of Paste-up and any one or more of the above		
i. Proofreading		

(Col. I) **PRODUCTION AREAS** **Pre-Press Section**	(Col. II) **Current Demand**	(Col. III) **Demand in 5 Years**
j. Black & White Camera Operations		
k. Process Color Operations		
l. Black & White Stripping		
m. Process Color Stripping		
n. Combination of Black & White Camera Operations & Stripping		
o. Combination of Process Color Operations and Stripping		
p. Offset Platemaking		

Press Room

q. Small Offset Operations (ABDick, Multi, etc)	_____	_____
r. Larger Offset Operations (over 17x22)	_____	_____
s. Process Color Operations (over 17x22)	_____	_____
t. Web Press Operations (Commercial Color)	_____	_____
u. Web Press Operations (Forms)	_____	_____
v. Web Press Operations (Circulars)	_____	_____

Bindery and Finishing

w. Hand and small machines operations	_____	_____
x. Cutter and folder operations	_____	_____

Please add any production area associated with your particular operation, which is not included above, and give the demand.

y.	_____	_____	_____
z.	_____	_____	_____

If you need more skilled workers than you now employ, and if you were able to find and hire them, by how much would you be able to increase sales using your existing facilities and equipment?

____0%, ____10%, ____20%, ____30%, ____40%, ____50%, ____51% or more